MS4 MONITORING, EVALUATION, TRACKING, AND REPORTING:
LEARNING FROM EXPERIENCE TO IMPROVE LOCAL CAPACITY AND PERMITTING APPROACHES

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EPA – SF BAY WATER BOARD SPONSORED WORKSHOP:
IMPROVING STORMWATER PERMIT APPROACHES TO MONITORING, TRACKING, EVALUATION, AND REPORTING

Primary goals of the workshop were to identify:

1. How permits can direct or incentivize these improvements
2. What methods could be used to support these improvements (e.g., training, guidance, best practices, research)
3. What entities within the sector could help affect these changes

IMPROVING STORMWATER PERMIT APPROACHES TO MONITORING, TRACKING, EVALUATION, AND REPORTING

* Two-day Workshop in March 2018
* Participants
  * EPA
  * Permitting agencies
  * Local Stormwater Program Managers
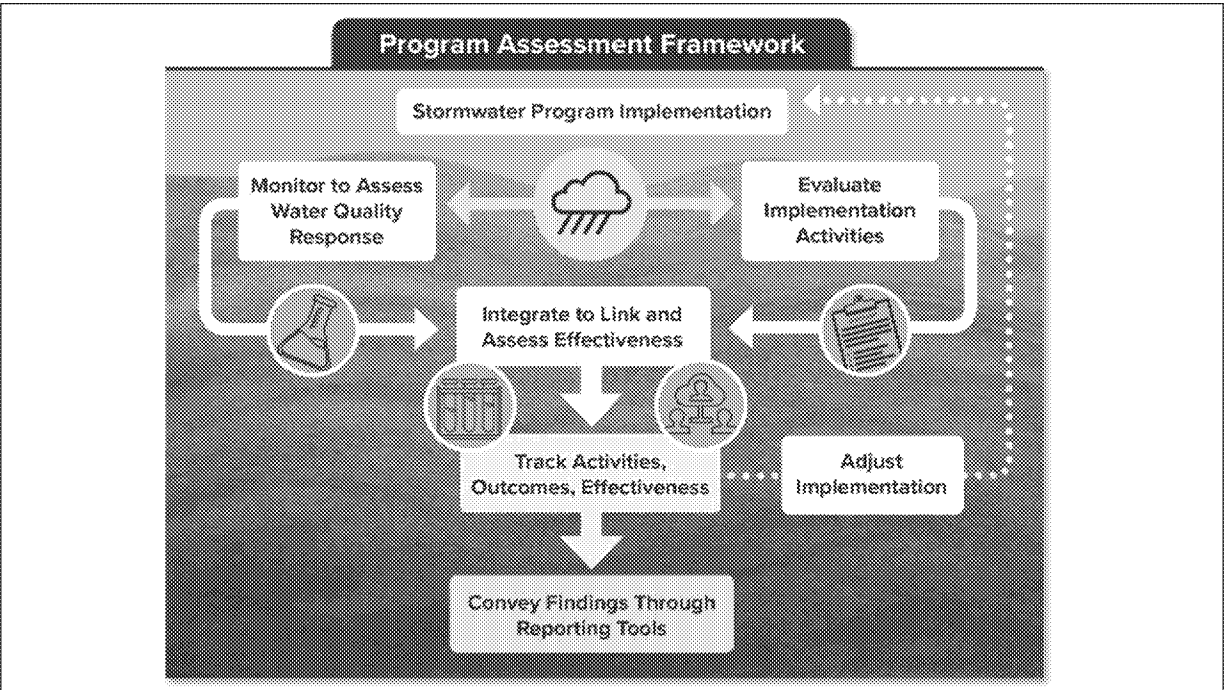 * National Associations
  * Consultants
  * NGOs
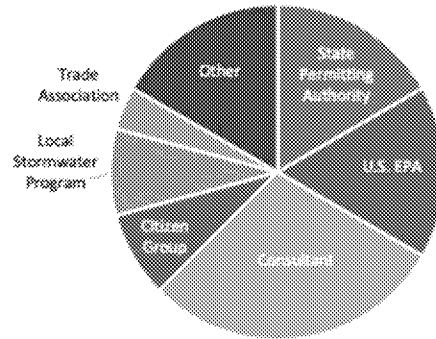
WORKSHOP SESSIONS

- Current Condition - Are the current Monitoring, Evaluation, Tracking and Reporting requirements effective?
- How Can We Better Use Performance Metrics to Facilitate Improved Monitoring, tracking, evaluation, and reporting?
- How Can We Make Outfall and Receiving Water Monitoring More Useful?
- Linking Activities to Expected Water Quality Outcomes
- How Can We Improve Program Performance Tracking?
- Reforming Reporting Approaches to Help Move Programs Forward and Give Permitting Authorities What They Need
- Reflection, Synthesis, and Wrap Up

TERMINOLOGY

- **Monitoring** – Collection of water quality and other environmental data—in a watershed, within the collection system, at end-of-pipe, or in a receiving water—that aids in analyzing program effectiveness or answering other management questions.

- **Evaluation** - An analysis of non-water-quality/environmental data and information about activity and BMP implementation that aids in determining whether a program, program element, activity, or individual BMP is meeting its intended objectives, or in answering other management questions.

- **Tracking** - Compiling and managing data and information (including the use of electronic databases and other systems to document program information).

- **Reporting** - Presenting information to regulatory agencies or other stakeholders to demonstrate program implementation or effectiveness.

- **Assessment** - An analysis of the overall effectiveness of an MS4 program; can be improved with information from monitoring and/or evaluation.

Program Assessment Framework

Stormwater Program Implementation

Monitor to Assess Water Quality Response

Evaluate Implementation Activities

Integrate to Link and Assess Effectiveness

Track Activities, Outcomes, Effectiveness

Adjust Implementation

Convey Findings Through Reporting Tools

BACKDROP

Acknowledgement that:

* Much time and money is spent on monitoring efforts that are not designed to answer key questions on program effectiveness or to guide program improvement

* Many current approaches may not enable local program managers to detect water quality change and correlate MS4 program actions with outcomes

* Many instances where requirements have been added to permits without careful consideration of how performance should be evaluated, and program actions adjusted over time

* This has increased resources needed for monitoring, tracking, and/or reporting efforts and resulted in often lengthy and intense reporting efforts for permittees with little perceived benefit to the permittee, regulator, or water quality

* We can and should change how we do these things!

PRE-WORKSHOP QUESTIONNAIRE

* In advance of workshop, participants polled to gauge attitudes toward specific aspects of the permitting program

* Respondents overwhelmingly agreed:

   There is potential to realize cost-effective, positive environmental outcomes through improved approaches to monitoring, tracking, evaluation, and reporting

6. How can we better link activities to outcomes?

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	TOTAL	Strongly Agree or Agree	Strongly Disagree or Disagree
Targeting implementation and monitoring in smaller areas increases likelihood of demonstrating linkages between implementation activities and water quality responses.	10	12	1	1	0	24	92%	4%
Using predictive watershed and BMP siting models can provide the analytical framework necessary to relate activity/BMP implementation measures to expected water quality outcomes.	6	11	5	2	0	24	71%	8%
Where model-based approaches are used for linkage in planning, monitoring may need to focus more on collection of data to support model validation and sensitivity analysis.	14	8	2	0	0	24	92%	0%
Where robust models and associated implementation plans are in place, it may be appropriate to reduce and/or strategically focus annual water quality monitoring requirements.	10	10	2	1	1	24	83%	8%
More complicated linkage methods may be unnecessary for simpler Phase II permits or other permits that do not focus on specific water quality issues.	7	12	3	2	0	24	79%	8%
Outreach and training will be needed to build local capacity to implement these planning and linkage methods.	11	11	1	1	0	24	92%	4%

General Capacity Building and Program Support

- **Develop a vision for the future of stormwater monitoring to improve MS4 program efficiency and effectiveness.** Identify common attributes of an effective approach to stormwater monitoring that support other local evaluation, tracking, and reporting efforts.
- **Develop a guide to monitoring and evaluation to better serve MS4 programs.** Document examples of successful monitoring approaches to enhance efficiency in local program design and implementation.
- **Establish key performance metrics (activity- and outcome-based) for MS4 programs.** Provide guidance and examples on approaches for measuring and communicating how program activities impact water quality outcomes.
- **Identify ways to leverage existing data sets to improve MS4 program management decisions.** Transform existing stormwater data into actionable information through better data analytics tools and broader scale evaluation of annual reports.